



PX454S Digital Multimeter Module

The PX454S is a full function DMM suitable for use on a variety of platforms with the family of C&H carriers. This DMM is based upon a 24 bit Sigma-Delta A/D converter with on-chip notch filter. This technology allows sampling frequencies (or filter frequencies) between 10 Hz and 1 KHz providing varying resolutions. The core measurement section is optically isolated and shielded.

This unit also features a position for adding one single-wide M-Module.

Specifications:

General Characteristics:

- DC or AC voltage and current
- 2 or 4 wire resistance measurement
- Up to 22 bits accuracy (6.5 digits)
- Max. resolution of 50nV, 5nA, 50 Ω
- DC Voltage: ± 125 mV to ± 500 V
- DC Current: ± 12.5 mA to ± 2.5 A
- AC V_{rms} : 250mV to 250V
- AC I_{rms} : 25mA to 2.5A
- Ohms: 0 to 250 Ω to 2.5M Ω
- True RMS measurements
- Auto calibration

Resolution:

- | | |
|--------------------|-----------|
| 10 Hz sampling: | 22.5 bits |
| 50/60 Hz sampling: | 20 bits |
| 1 KHz sampling: | 11 bits |

Input Connector:

5W5S DSUB

Airflow (min):

10m³/h

Temperature:

- | | |
|------------|---------------|
| Operating: | 0°C to 60°C |
| Storage: | -20°C to 70°C |

Power:

+5V @ 1.1 A with DC/DC

CPCI/PXI Compliance

Complies with PCI spec. 2.0 R3.0 and PCI spec 2.2

5V and 3.3V signaling voltage (VIO) supported

5V only power supply

33MHz PCI data bus

Five trigger lines compliant with PXI Specification 2.1

Form Factor: Size 3U

Applications

- DMM Instrument Functions
- Factory Test

Ordering Information

Part Number 11030230-0001

Additional Information

User Manuals for C&H carriers and this module can be found on our website at www.chtech.com.



DC Voltage Measurement:

Maximum Voltage Input:

- HV Input: 500VDC for 500V range
- Normal Input: 125VDC for other ranges

Measuring Ranges:

- $\pm 125\text{mV}$, $\pm 1.25\text{V}$, $\pm 12.5\text{V}$, $\pm 125\text{V}$, $\pm 500\text{V}$

Measuring Accuracy:

- 24 hours, $23^\circ\text{C} \pm 1^\circ\text{C}$: error < 0.025%
- 90 days, $23^\circ\text{C} \pm 5^\circ\text{C}$: error < 0.05%
- Temp Coefficient, 0 to $+55^\circ\text{C}$: error < 0.01%

Input Impedance:

- 500V input (HV) $40\text{ M}\Omega$
- 125V and 12.5V ranges $10\text{ M}\Omega$
- 1.25V and 125 mV ranges $>1\text{ G}\Omega$

Input Current: 10 pA max @ 23°C

CMRR: 100dB @ 50/60 Hz

NMRR: 60 dB @ 50/60 Hz

AC Voltage Measurement:

Maximum Input Voltage:

- High Voltage Input: 250V AC
- Normal Input: 60V AC

Measuring Ranges:

- 250mVrms, sine 40 Hz-100KHz: error < 5%
- 2.5Vrms, sine 40 Hz-100KHz: error < 1%
- 25Vrms, sine 40 Hz-100KHz: error < 1%
- 250Vrms (HV in) sine 40 Hz-100KHz: error < 1%

Crest Factor: 4 max

Measuring Accuracy @ 50/60 Hz:

- 24 hours, $23^\circ\text{C} \pm 1^\circ\text{C}$: error < 0.5%
- 90 days, $23^\circ\text{C} \pm 5^\circ\text{C}$: error < 1.0%
- Range Error: < 1%

Input Impedance:

- High-voltage input: $40\text{ M}\Omega$
- Normal Input: $1\text{ M}\Omega$

Input Current: 10 pA max @ 23°C

CMRR: 100dB @ 50/60 Hz

DC Current Measurement:

Maximum Voltage: 60 V on all ranges

Measuring Ranges: $\pm 12.5\text{mA}$, $\pm 125\text{mA}$, $\pm 1.25\text{A}$, $\pm 2.5\text{A}$

Measuring Accuracy:

- 24 hours, $23^\circ\text{C} \pm 1^\circ\text{C}$: error < 0.025%
- 90 days, $23^\circ\text{C} \pm 5^\circ\text{C}$: error < 0.05%
- Temperature Coefficient, 0 to $+55^\circ\text{C}$: error < 0.01%

Shunt:

- 12.5mA and 125mA ranges: $1\text{ }\Omega$
- 1.25A and 2.5A ranges: $0.1\text{ }\Omega$

AC Current Measurement:

Maximum Voltage: 42 V on all ranges

Measuring Ranges: 25mA, 250mA, 2.5A all RMS

Crest Factor: 4 max

Measuring Accuracy:

- 24 hours, $23^\circ\text{C} \pm 1^\circ\text{C}$: error < 0.5%
- 90 days, $23^\circ\text{C} \pm 5^\circ\text{C}$: error < 1.0%

Shunt:

- 25mA and 250mA ranges: $1\text{ }\Omega$
- 2.5A ranges: $0.1\text{ }\Omega$

Resistance Measurement:

Measuring Ranges: 250 $_\text{}$, 2.5K $_\text{}$, 25K $_\text{}$, 250K $_\text{}$, 2.5M $_\text{}$

Measuring Accuracy (All but 2.5M $_\text{}$ range):

- 24 hours, $23^\circ\text{C} \pm 1^\circ\text{C}$: error < 0.1%
- 90 days, $23^\circ\text{C} \pm 5^\circ\text{C}$: error < 0.2%
- Temperature Coefficient, 0 to 55°C : error < 1%

Measuring Accuracy (For 2.5M $_\text{}$ range):

- 24 hours, $23^\circ\text{C} \pm 1^\circ\text{C}$: error < 1.0%
- 90 days, $23^\circ\text{C} \pm 5^\circ\text{C}$: error < 2.0%
- Temperature Coefficient, 0 to 55°C : error < 0.1%

Measuring Modes:

Maximum Measuring Voltage: 2.5V